ICC EVALUATION SERVICE

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Joint Evaluation Report

ESR-1225

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 17 33—Wood I-joists

REPORT HOLDER:

PACIFIC WOODTECH CORPORATION

EVALUATION SUBJECT:

PWI JOISTS

ADDITIONAL LISTEE:

BLUELINX CORPORATION

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015, 2012, and 2009 *International Building Code*® (IBC)
- 2021, 2018, 2015, 2012, and 2009 *International Residential Code*® (IRC)

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see ESR-1225 LABC and LARC Supplement.

Properties evaluated:

- Structural
- Fire-resistance-rated assemblies

2.0 USES

PWI joists are used as joists, rafters, headers and blocking panels.

3.0 DESCRIPTION

3.1 General:

PWI joists comply with IBC Section 2303.1.2, 2018 and 2015 IRC Section R502.1.2 and 2012, 2009 and 2006 IRC Section R502.1.4 for allowable stress design, and are manufactured in accordance with the approved Pacific Woodtech Corporation *I-Joist Quality Control Manual.* Joist descriptions are provided in Table 1. Pacific Woodtech Corporation private-labels PWI joists. The company names and associated product trade names for the PWI joists and private label I-joists are as follows:

COMPANY OR LISTEE	PRODUCT TRADE NAME
Pacific Woodtech Corporation	PWI Joist
BlueLinx Corporation	onCENTER®

All PWI joists, regardless of the private label, are identified as described in Section 7.0 of this report.

3.2 Materials:

3.2.1 Flanges: Structural composite as specified in the approved quality control manual. See Table 1.

3.2.2 Webs: Wood structural panel sections as specified in the approved quality control manual. See Table 1.

3.2.3 Adhesives: Exterior-type, heat-durable adhesives complying with ASTM D5055 as specified by the approved quality control manual.

4.0 DESIGN AND INSTALLATION

4.1 General:

The information provided in this report applies to the Allowable Stress Design method.

4.2 Web Stiffeners:

Web stiffeners are not required, with the following exceptions:

a. Web stiffeners are required at the ends of the I-joist in joist hangers that are not deep enough to laterally support the top flange of the joist. Refer to the hanger installation instructions.

b. Web stiffeners are required to accommodate special hanger nailing requirements. Refer to the hanger installation instructions.

c. Web stiffeners are required under concentrated loads applied to the top of the I-joist between supports, or along cantilevers beyond the support, when the concentrated load exceeds 1500 pounds (6672 N).

d. Web stiffeners are required at birdsmouth cuts at the low end support of sloped joists.

e. Web stiffeners are required for high reactions at supports.

See Table 2B for allowable reaction and web stiffener use requirements. See Figure 1 for illustrations as well as web stiffener dimensions and nail sizes.

4.3 Web Holes:

Tables 4 and 5 provide allowable locations for round, rectangular and duct holes in joists sized by means of Table 3. For engineered designs, refer to the notes in Tables 4 and 5 and use the following allowable hole shear values:

Round holes: $V_{hole} = (\frac{d - Hole\ Diameter\ (inches)}{d} - C) \times V_{joist}$

where:

V_{hole} = allowable joist shear at web hole (lbs).
d = joist depth (inches).
C = adjustment variable, 0.06 for $^3/_8$-inch-thick webs and 0.00 for $^7/_{16}$-inch-thick webs, see Table 1.
V_{joist} = allowable joist shear (lbs).

Rectangular holes: If the longest side dimension is less than or equal to 0.75(d - 2d_{fl}), analyze as a round hole with a diameter equal to the longest side dimension divided by 0.75, otherwise analyze as a duct hole with a width equal to the width of the desired rectangular hole.

where:

d = joist depth (in.)

d_{fl} = flange depth (in.), see Table 1.

Duct holes (full height of web removed):

PWI 20/30	V_{hole} = 300 - 8.5 × width maximum width = 12 inches
PWI 47/50	V_{hole} = 360 - 11 × width maximum width = 14 inches
PWI 40/45/60/70/77/77w	V_{hole} = 430 - 11.5 × width maximum width = 20 inches
PWI 90	V_{hole} = 515 - 12 × width maximum width = 24 inches

where:

V_{hole} = allowable joist shear at web hole (lbs).

Width = duct hole width (inches).

4.4 Fasteners:

Allowable capacities and spacing for nails into the top of flanges of PWI joists with LVL flanges are in accordance with the NDS for solid-sawn lumber with a specific gravity of 0.50. Allowable capacities and spacing for nails into the side of flanges of PWI joists with LVL flanges are in accordance with the NDS for solid-sawn lumber with a specific gravity of 0.50 for lateral values and 0.47 for withdrawal values.

PWI joists used in the construction of horizontal wood diaphragms are subject to the allowable load values and requirements of Table 6.

4.5 Bridging:

Bridging is not required in the joist span unless specified by the building designer.

4.6 Lateral Support:

Provide lateral restraint at supports (e.g., blocking panels, rim board) and along the compression flange of each joist (e.g., wood structural panel sheathing, gypsum board ceiling, wood structural panel soffit).

4.7 Fire-resistive Construction for Roof-ceiling and Floor-ceiling Assemblies:

4.7.1 Assembly 1, One-hour:

4.7.1.1 Finish Flooring (Optional): Hardwood or softwood flooring on building paper; or resilient flooring, parquet floor, synthetic-fiber-felt floor coverings, carpeting, or ceramic tile on 3/8-inch-thick (10 mm) panel-type underlayment; or ceramic tile on 1 1/4-inch (32 mm) mortar bed.

4.7.1.2 Subfloor: Wood structural sheathing in compliance with the provisions of PS1 or PS2 and the applicable building code.

4.7.1.3 Wood Structural Members: Minimum 9 1/2-inch-deep (241 mm) wood I-joists spaced a maximum of 24 inches (610 mm) on center. Minimum flange size is 1 1/2 inches thick by 1 1/2 inches wide (38 by 38 mm). Minimum web thickness is 3/8 inch (10 mm).

4.7.1.4 Insulation (Optional): 3 1/2-inch (89 mm) glass fiber batts, or 3 1/2-inch (89 mm) mineral wool batts.

4.7.1.5 Resilient Channels: Minimum 0.018-inch-thick (0.5 mm) resilient channels are installed in continuous rows at a maximum spacing of 24 inches (610 mm) on center, and are perpendicular to the joists. The channels are attached to the bottom of each joist with a 1 1/4-inch-long (32 mm) screw. Additional channels may be installed between continuous rows at the locations of end joints in the first layer of ceiling. The additional channel may be extended a minimum of 2 inches (51 mm) beyond the joists adjacent to each side of the gypsum board panels in the first layer of ceiling.

4.7.1.6 Ceiling: Two layers of 1/2-inch-thick (13 mm), Type X gypsum board in compliance with ASTM C1396. The long edge of each layer must be perpendicular to the channels (parallel to the joists). End and side joints must be staggered at least 16 inches (406 mm) from layer to layer. The first layer must be fastened to the resilient channels with 1 1/4-inch (32 mm), Type S screws at 12 inches (305 mm) on center. Screws must be installed a minimum of 3/8 inch (10 mm) from end joints and a minimum of 1 1/2 inches (38 mm) from side joints. The second layer must be fastened to the resilient channels with 1 5/8-inch (41 mm), Type S screws at 12 inches (305 mm) on center. Screws must be installed a minimum of 1/2 inch (13 mm) from end and side joints. One-and-one-half-inch (38 mm), Type G screws may be substituted at end joints in the second layer when end joints fall between channels.

4.7.2 Assembly 2, One-hour:

4.7.2.1 Finish Flooring (Optional): Hardwood or softwood flooring on building paper; or resilient flooring, parquet flooring, synthetic-fiber-felt floor covering, carpeting, or ceramic tile on 3/8-inch-thick (10 mm) panel-type underlayment; or ceramic tile on 1 1/4-inch-thick (32 mm) mortar bed.

4.7.2.2 Subfloor: Minimum 23/32-inch-thick (19 mm) wood structural sheathing in compliance with the provisions of PS 1 or PS 2 and the applicable building code.

4.7.2.3 Wood Structural Members: Minimum 9 1/2-inch-deep (241 mm) wood I-joists spaced a maximum of 24 inches (610 mm) on center. Minimum flange size 1 1/8-inch-thick-by-2 5/16-inch-wide (29 mm by 59 mm). Minimum web thickness is 3/8 inch (10 mm).

4.7.2.4 Insulation (Optional): 3 1/2-inch-thick (89 mm) glass fiber batts.

4.7.2.5 Resilient Channels: Minimum 0.019-inch-thick (0.5 mm) resilient channels installed perpendicular to the I-joists at 16 inches (406 mm) on center. Attach to each I-joist with one 1 1/4-inch-long (32 mm) Type S drywall screw.

4.7.2.6 Ceiling: Two layers of ½-inch-thick (13 mm) USG SHEETROCK Brand FIRECODE® C Core Type X gypsum boards installed with long dimension perpendicular to resilient channels:

Base Layer: Butt ends on resilient channels and stagger end joints. Attach to the resilient channels with #6 x 1 1/4-inch-long (32 mm) Type S drywall screws at 12 inches (305 mm) on center. Minimum 1 1/2-inch (38 mm) edge distance and minimum 3/8-inch (10 mm) end distance.

Face Layer: Stagger edge joints from base layer by 24 inches (610 mm). Stagger end joints from base layer by minimum 1 1/2 channel spaces. Attach to resilient channels through base layer with #6 x 1 5/8-inch-long (41 mm) Type S drywall screws at 12 inches (305 mm) on center. Attach ends to base layer with #10 x 1 1/2-inch (38 mm) Type G drywall screws at 8 inches (203 mm) on center. Minimum 1 1/2-inch (38 mm) edge distance and end distance. Finish joints with tape and joint compound. Finish screw heads with joint compound.

4.7.3 Other Assemblies: PWI joists may be used in the assemblies described in 2018, 2015 and 2012 IBC Table 721.1(3) and 2009 IBC Table 720.1(3), Item Numbers 21-1.1, and 23-1.1 through 28-1.1; and 2006 IBC Table 720.1(3), Item Numbers 21-1.1, 23-1.1, 25-1.1 through 29-1.1, provided the joists meet the criteria listed in the "Floor or Roof Construction" column. PWI joists with $1^1/_2$-by-$1^1/_2$-inch flanges (38 mm by 38 mm) satisfy the minimum 2.3-square-inch (14.4 cm^2), flange-cross-sectional area criterion of 2018, 2015 and 2012 IBC Table 721.1(3), Item Number 23-1.1 and 2009 IBC Table 720.1(3), Item Number 23-1.1. PWI joists may also be used in wood I-joist assemblies that are qualified under the Footnote q of the IBC tables referenced in this Section 4.7.3.

4.8 Fire Protection of Floors:

PWI joists may be used in the fire protection assemblies described in Section 4.3 of ICC-ES evaluation report ESR-1405 to meet the Exception 4 to 2018 and 2015 IRC Section R302.13 and 2012 IRC Section R501.3.

5.0 CONDITIONS OF USE

The Pacific Woodtech Corporation and private label I-joists described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 I-joists are manufactured at the Pacific Woodtech facility in Burlington, Washington, under a quality control program with inspections by ICC-ES and APA.

5.2 Design and installation must comply with the applicable building code, this report and the manufacturer's published installation instructions. In the event of a conflict, the code and this report must govern.

5.3 For applications based on Tables 2A and 2B, design calculations and details for specific applications must be furnished to the code official, when requested, when the permit is applied for. Calculations and drawings shall be prepared, signed and sealed by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Prefabricated Wood I-joists (AC14), dated June 2019 (Editorially revised February 2021).

7.0 IDENTIFICATION

7.1 Each I-joist must be marked with the product trade name or trademark; the joist series; the production date; the evaluation report number (ESR-1225); the name of the manufacturer (Pacific Woodtech); and the manufacturer's APA mill number (1048).

7.2 The report holder's contact information is the following:

PACIFIC WOODTECH CORPORATION
1850 PARK LANE
BURLINGTON, WASHINGTON 98233
(360) 707-2200
www.pacificwoodtech.com

7.3 The Additional Listee's contact information is the following:

BLUELINX CORPORATION
1950 SPECTRUM CIRCLE
MARIETTA, GEORGIA 30067

TABLE 1—JOIST DESCRIPTION

Joist Series	Joist Depths [in]		Flange			Web	
	Minimum	Maximum	Material	Width [in]	Depth [in]	Material	Thick. [in]
PWI-20	$9^1/_2$	14	LVL	$1^3/_4$	$1^3/_8$	OSB	$^3/_8$
PWI-30	$9^1/_2$	$11^7/_8$	LVL	$1^1/_2$	$1^1/_2$	OSB	$^3/_8$
PWI-40	$9^1/_4$	16	LVL	$2^5/_{16}$	$1^3/_8$	OSB	$^3/_8$
PWI-45	$9^1/_2$	16	LVL	$2^1/_{16}$	$1^3/_8$	OSB	$^3/_8$
PWI-47	$7^7/_8$	20	LVL	$2^5/_{16}$	$1^1/_8$	OSB	$^3/_8$
PWI-50	$9^1/_2$	16	LVL	$1^3/_4$	$1^1/_2$	OSB	$^3/_8$
PWI-60	$9^1/_4$	16	LVL	$2^5/_{16}$	$1^3/_8$	OSB	$^3/_8$
PWI-70	$11^7/_8$	20	LVL	$2^5/_{16}$	$1^1/_2$	OSB	$^3/_8$
PWI-77	$9^1/_2$	24	LVL	$2^5/_{16}$	$1^1/_2$	OSB	$^7/_{16}$
PWI-77w	$9^1/_2$	24	LVL	$2^1/_2$	$1^1/_2$	OSB	$^7/_{16}$
PWI-90	$9^1/_2$	24	LVL	$3^1/_2$	$1^1/_2$	OSB	$^7/_{16}$

For **SI:** 1 inch = 25.4 mm.

TABLE 2A—REFERENCE ALLOWABLE STRESS DESIGN VALUES FOR PWI JOISTS [1, 2]

Joist Series	Joist Depth	EI [3, 8]	k [4, 8]	M [5]	V [6]	Vert. Load [7]
PWI-20	9 1/2"	157	4.94	2520	1330	2000
	11 7/8"	267	6.18	3265	1705	2000
	14"	392	7.28	3890	1955	2000
PWI-30	9 1/2"	161	4.94	3225	1330	2000
	11 7/8"	280	6.18	4170	1705	2000
PWI-40	9 1/4"	181	4.81	2650	1280	2000
	9 1/2"	193	4.94	2735	1330	2000
	11 7/8"	330	6.18	3545	1705	2000
	14"	482	7.28	4270	1955	2000
	16"	657	8.32	4950	2190	2000
PWI-45	9 1/2"	193	4.94	3345	1330	2000
	11 7/8"	330	6.18	4315	1705	2000
	14"	486	7.28	5140	1955	2000
	16"	665	8.32	5880	2190	2000
PWI-47	7 7/8"	133	4.10	2690	1000	2000
	9 1/2"	207	4.94	3565	1330	2000
	11 7/8"	345	6.18	4570	1705	2000
	14"	501	7.28	5420	1955	2000
	16"	677	8.32	6185	2190	2000
	18"	878	9.36	6500	2425	1450
	20"	1112	10.40	7200	2660	1450
PWI-50	9 1/2	186	4.94	3800	1330	2000
	11 7/8"	322	6.18	4915	1705	2000
	14"	480	7.28	5860	1955	2000
	16"	663	8.32	6715	2190	2000
PWI-60	9 1/4"	218	4.81	3665	1280	2000
	9 1/2"	231	4.94	3780	1330	2000
	11 7/8"	396	6.18	4900	1705	2000
	14"	584	7.28	5895	1955	2000
	16"	799	8.32	6835	2190	2000
PWI-70	11 7/8"	440	6.18	6730	1705	2000
	14"	644	7.28	8030	1955	2000
	16"	873	8.32	9200	2190	2000
	18"	1141	9.36	10355	2425	1450
	20"	1447	10.40	11495	2660	1450
PWI-77/77w	9 1/2"	261	6.08	5155	1430	2400
	11 7/8"	442	7.60	6675	1925	2400
	14"	648	8.96	7960	2125	2400
	16"	881	10.24	9120	2330	2400
	18"	1152	11.52	10265	2535	1800
	20"	1463	12.80	11395	2740	1800
	22"	1815	14.08	12520	2935	1300
	24"	2209	15.36	13630	3060	1300
PWI-90	9 1/2"	392	6.08	7915	1430	2400
	11 7/8"	661	7.60	10255	1925	2400
	14"	965	8.96	12235	2125	2400
	16"	1306	10.24	14020	2330	2400
	18"	1703	11.52	15780	2535	1800
	20"	2155	12.80	17520	2740	1800
	22"	2664	14.08	19245	2935	1300
	24"	3232	15.36	20955	3060	1300

For **SI:** 1 inch = 25.4 mm, 1 lb = 4.448 N, 1 ft-lb = 1.35 N-m, 1 lb-in^2 = 179 N-mm^2.

1. Applicable adjustment factors must be applied to reference design values in accordance with Section 7.3 of the NDS.
2. Reference design values reflect dry service conditions, where the moisture content in service is less than 16%, as in most covered structures.
3. Bending stiffness [10^6 lb-in^2]
4. Coefficient of shear deflection [10^6 lb]
5. Moment capacity [ft-lb]. Reference moment values must be multiplied by the repetitive member factor, C_r = 1.0.
6. Shear capacity [lb]
7. Blocking panel vertical load capacity [plf]
8. Use Equations 1 and 2 to calculate uniform and center point load deflections in a simple-span application.

Uniform Load: $$\delta = \frac{5w\ell^4}{384EI} + \frac{w\ell^2}{k} \quad [1]$$

Center-Point Load: $$\delta = \frac{P\ell^3}{48EI} + \frac{2P\ell}{k} \quad [2]$$

Where: δ = calculated deflection in inches
w = uniform load in pounds per inch
P = concentrated load in pounds
ℓ = design span in inches
EI = I-joist bending stiffness in pounds-inches squared
k = coefficient of shear deflection in pounds

TABLE 2B—REFERENCE ALLOWABLE STRESS REACTION VALUES FOR PWI JOISTS [1, 2]

Joist Series	Joist Depth	ER ($1^3/_4$" ≤ ℓ_b ≤ $3^1/_2$")[3]		IR ($3^1/_2$" ≤ ℓ_b ≤ $5^1/_4$")[4]		WS[5] Nails	b_{EFF}[6]
		No Web Stiffeners	With Web Stiffeners	No Web Stiffeners	With Web Stiffeners		
PWI-20	$9^1/_2$"	117.1 × ℓ_b + 710	0.0 × ℓ_b + 1120	142.9 × ℓ_b + 1490	0.0 × ℓ_b + 2240	4	1.62
	$11^7/_8$"	222.9 × ℓ_b + 525	0.0 × ℓ_b + 1420	245.7 × ℓ_b + 1130	211.4 × ℓ_b + 1535	4	
	14"	222.9 × ℓ_b + 525	97.1 × ℓ_b + 1370	245.7 × ℓ_b + 1130	211.4 × ℓ_b + 1535	4	
PWI-30	$9^1/_2$"	77.7 × ℓ_b + 809	77.7 × ℓ_b + 809	0.0 × ℓ_b + 1905	0.0 × ℓ_b + 1905	4	1.37
	$11^7/_8$"	210.9 × ℓ_b + 576	210.9 × ℓ_b + 576	0.0 × ℓ_b + 1905	0.0 × ℓ_b + 1905	4	
PWI-40	$9^1/_4$"	0.0 × ℓ_b + 1080	0.0 × ℓ_b + 1080	0.0 × ℓ_b + 2160	0.0 × ℓ_b + 2160	4	2.18
	$9^1/_2$"	22.9 × ℓ_b + 1040	0.0 × ℓ_b + 1120	0.0 × ℓ_b + 2240	0.0 × ℓ_b + 2240	4	
	$11^7/_8$"	194.3 × ℓ_b + 740	0.0 × ℓ_b + 1420	291.4 × ℓ_b + 1310	0.0 × ℓ_b + 2840	4	
	14"	200.0 × ℓ_b + 730	0.0 × ℓ_b + 1710	291.4 × ℓ_b + 1310	205.7 × ℓ_b + 2120	4	
	16"	200.0 × ℓ_b + 730	0.0 × ℓ_b + 1970	291.4 × ℓ_b + 1310	257.1 × ℓ_b + 2250	8	
PWI-45	$9^1/_2$"	80.0 × ℓ_b + 840	0.0 × ℓ_b + 1120	0.0 × ℓ_b + 2240	0.0 × ℓ_b + 2240	4	1.93
	$11^7/_8$"	245.7 × ℓ_b + 550	0.0 × ℓ_b + 1420	180.0 × ℓ_b + 1620	137.1 × ℓ_b + 2120	4	
	14"	245.7 × ℓ_b + 550	80.0 × ℓ_b + 1430	180.0 × ℓ_b + 1620	240.0 × ℓ_b + 1760	4	
	16"	245.7 × ℓ_b + 550	228.6 × ℓ_b + 1170	180.0 × ℓ_b + 1620	240.0 × ℓ_b + 1760	8	
PWI-47	7⅞"	171.4 × ℓ_b + 565	14.3 × ℓ_b + 1085	222.9 × ℓ_b + 1030	168.6 × ℓ_b + 1535	4	2.18
	9½"	228.6 × ℓ_b + 530	48.6 × ℓ_b + 1160	202.9 × ℓ_b + 1435	162.9 × ℓ_b + 1730	4	
	11⅞"	254.3 × ℓ_b + 515	17.1 × ℓ_b + 1410	254.3 × ℓ_b + 1260	157.1 × ℓ_b + 2005	4	
	14"	237.1 × ℓ_b + 575	20.0 × ℓ_b + 1580	300.0 × ℓ_b + 1105	151.4 × ℓ_b + 2250	4	
	16"	222.9 × ℓ_b + 520	22.9 × ℓ_b + 1740	191.4 × ℓ_b + 1390	145.7 × ℓ_b + 2485	8	
	18"	234.3 × ℓ_b + 510	22.9 × ℓ_b + 1905	182.9 × ℓ_b + 1480	140.0 × ℓ_b + 2720	8	
	20"	248.6 × ℓ_b + 495	25.7 × ℓ_b + 2065	177.1 × ℓ_b + 1560	134.3 × ℓ_b + 2955	10	
PWI-50	$9^1/_2$"	46.9 × ℓ_b + 933	46.9 × ℓ_b + 933	0.0 × ℓ_b + 2040	0.0 × ℓ_b + 2040	4	1.62
	$11^7/_8$"	180.0 × ℓ_b + 700	180.0 × ℓ_b + 700	0.0 × ℓ_b + 2040	0.0 × ℓ_b + 2040	4	
	14"	164.6 × ℓ_b + 727	213.7 × ℓ_b + 641	0.0 × ℓ_b + 2040	0.0 × ℓ_b + 2040	4	
	16"	164.6 × ℓ_b + 727	293.7 × ℓ_b + 501	0.0 × ℓ_b + 2040	0.0 × ℓ_b + 2040	8	
PWI-60	$9^1/_4$"	0.0 × ℓ_b + 1080	0.0 × ℓ_b + 1080	0.0 × ℓ_b + 2160	0.0 × ℓ_b + 2160	4	2.18
	$9^1/_2$"	2.9 × ℓ_b + 1040	0.0 × ℓ_b + 1120	0.0 × ℓ_b + 2240	0.0 × ℓ_b + 2240	4	
	$11^7/_8$"	194.3 × ℓ_b + 740	0.0 × ℓ_b + 1420	291.4 × ℓ_b + 1310	0.0 × ℓ_b + 2840	4	
	14"	200.0 × ℓ_b + 730	0.0 × ℓ_b + 1710	291.4 × ℓ_b + 1310	205.7 × ℓ_b + 2120	4	
	16"	200.0 × ℓ_b + 730	0.0 × ℓ_b + 1970	291.4 × ℓ_b + 1310	257.1. × ℓ_b + 2250	8	
PWI-70	$11^7/_8$"	148.6 × ℓ_b + 900	0.0 × ℓ_b + 1420	217.1 × ℓ_b + 1700	0.0 × ℓ_b + 2840	4	2.18
	14"	260.0 × ℓ_b + 705	67.4 × ℓ_b + 1474	308.6 × ℓ_b + 1380	154.3 × ℓ_b + 2610	4	
	16"	260.0 × ℓ_b + 705	216.0 × ℓ_b + 1214	308.6 × ℓ_b + 1380	257.1 × ℓ_b + 2250	8	
	18"	260.0 × ℓ_b + 705	246.3 × ℓ_b + 1377	308.6 × ℓ_b + 1380	342.9 × ℓ_b + 2300	8	
	20"	260.0 × ℓ_b + 705	260.0 × ℓ_b + 1353	308.6 × ℓ_b + 1380	342.9 × ℓ_b + 2300	10	
PWI-77 PWI-77w	$9^1/_2$"	82.9 × ℓ_b + 1140	0.0 × ℓ_b + 1430	94.3 × ℓ_b + 2365	0.0 × ℓ_b + 2860	4	2.18
	$11^7/_8$"	271.4 × ℓ_b + 810	20.0 × ℓ_b + 1855	260.0 × ℓ_b + 1785	345.7 × ℓ_b + 1820	4	
	14"	271.4 × ℓ_b + 810	134.3 × ℓ_b + 1655	260.0 × ℓ_b + 1785	345.7 × ℓ_b + 1820	4	
	16"	271.4 × ℓ_b + 810	251.4 × ℓ_b + 1450	260.0 × ℓ_b + 1785	345.7 × ℓ_b + 1820	8	
	18"	271.4 × ℓ_b + 810	225.7 × ℓ_b + 1745	260.0 × ℓ_b + 1785	194.3 × ℓ_b + 3090	8	
	20"	271.4 × ℓ_b + 810	291.4 × ℓ_b + 1630	260.0 × ℓ_b + 1785	194.3 × ℓ_b + 3090	10	
	22"	NA	291.4 × ℓ_b + 1880	NA	171.4 × ℓ_b + 3525	10	
	24"	NA	291.4 × ℓ_b + 1880	NA	171.4 × ℓ_b + 3525	10	
PWI-90	$9^1/_2$"	17.1 × ℓ_b + 1370	0.0 × ℓ_b + 1430	0.0 × ℓ_b + 2860	0.0 × ℓ_b + 2860	4	3.37
	$11^7/_8$"	285.7 × ℓ_b + 900	14.3 × ℓ_b + 1875	282.9 × ℓ_b + 2365	0.0 × ℓ_b + 3850	4	
	14"	285.7 × ℓ_b + 900	128.6 × ℓ_b + 1675	351.4 × ℓ_b + 2125	225.7 × ℓ_b + 3065	4	
	16"	285.7 × ℓ_b + 900	245.7 × ℓ_b + 1470	351.4 × ℓ_b + 2125	351.4 × ℓ_b + 2625	8	
	18"	285.7 × ℓ_b + 900	220.0 × ℓ_b + 1765	351.4 × ℓ_b + 2125	351.4 × ℓ_b + 3125	8	
	20"	285.7 × ℓ_b + 900	285.7 × ℓ_b + 1650	351.4 × ℓ_b + 2125	351.4 × ℓ_b + 3125	10	
	22"	NA	285.7 × ℓ_b + 1900	NA	351.4 × ℓ_b + 3375	10	
	24"	NA	285.7 × ℓ_b + 1900	NA	351.4 × ℓ_b + 3375	10	

For **SI:** 1 inch = 25.4 mm, 1 lb = 4.448 N.

1. Reaction values are permitted to be adjusted for load duration in accordance with Section 7.3.2 of the NDS, provided the adjusted value is less than or equal to the limiting value calculated in footnote 6 to this table.
2. Reference design values reflect dry service conditions, where the moisture content in service is less than 16%, as in most covered structures.
3. End reaction capacity [lb]. For $1^3/_4 \le \ell_b \le 3^1/_2$, where ℓ_b is the bearing length in inches. See Note 6.
4. Intermediate reaction capacity [lb]. For $3^1/_2 \le \ell_b \le 5¼$, where ℓ_b is the bearing length in inches. See Note 6.
5. Number of web stiffener nails. Refer to Figure 1 for web stiffener and nail dimensions.
6. Effective flange width [in]. ER shall not exceed $b_{EFF} \times \ell_b \times F_{c\perp}$ and IR shall not exceed $b_{EFF} \times \ell_b \times F_{c\perp} \times C_b$, where ℓ_b is the bearing length in inches, $F_{c\perp}$ is the reference compression design value perpendicular to grain in pounds per square inch and $C_b = (\ell_b + 0.375) \div \ell_b$. For LVL flanges, $F_{c\perp}$ = 650 psi. Do not adjust $F_{c\perp}$ for load duration. Compression of the support surface must also be checked.

TABLE 3—ALLOWABLE RESIDENTIAL FLOOR SPANS – 40 PSF LIVE LOAD AND 10 PSF DEAD LOAD (1 – 7)

Joist Series	Joist Depth	Simple Span				Two or More Continuous Spans			
		12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI-20	9 1/2"	17'-0"	15'-6"	14'-8"	13'-9"	18'-11"	17'-2"	15'-7"	13'-11"
	11 7/8"	20'-2"	18'-6"	17'-6"	16'-0"	22'-6"	19'-6"	17'-10"	15'-8"
	14"	22'-11"	21'-0"	19'-6"	17'-5"	24'-8"	21'-4"	19'-6"	15'-8"
PWI-30	9 1/2"	17'-1"	15'-8"	14'-10"	13'-10"	19'-0"	17'-5"	16'-5"	15'-0"
	11 7/8"	20'-6"	18'-9"	17'-9"	16'-7"	22'-10"	20'-10"	18'-9"	15'-0"
PWI-40	9 1/4"	17'-7"	16'-1"	15'-2"	14'-2"	19'-7"	17'-7"	16'-0"	14'-4"
	9 1/2"	18'-0"	16'-5"	15'-6"	14'-6"	20'-0"	17'-10"	16'-3"	14'-6"
	11 7/8"	21'-5"	19'-7"	18'-6"	16'-8"	23'-7"	20'-4"	18'-7"	16'-7"
	14"	24'-4"	22'-3"	20'-6"	18'-4"	25'-11"	22'-5"	20'-5"	18'-3"
	16"	26'-11"	24'-2"	22'-1"	19'-9"	27'-11"	24'-1"	22'-0"	18'-5"
PWI-45	9 1/2"	18'-0"	16'-5"	15'-6"	14'-6"	20'-0"	18'-3"	17'-3"	16'-1"
	11 7/8"	21'-5"	19'-7"	18'-6"	17'-3"	23'-11"	21'-10"	20'-6"	17'-9"
	14"	24'-4"	22'-3"	21'-0"	19'-5"	27'-2"	24'-7"	22'-3"	17'-9"
	16"	27'-0"	24'-8"	23'-4"	19'-5"	30'-2"	26'-4"	22'-3"	17'-9"
PWI-47	7 7/8"	15'-10"	14'-6"	13'-8"	12'-9"	17'-7"	16'-1"	15'-2"	14'-1"
	9 1/2"	18'-4"	16'-9"	15'-10"	14'-9"	20'-5"	18'-7"	17'-6"	16'-4"
	11 7/8"	21'-8"	19'-10"	18'-9"	17'-5"	24'-2"	22'-1"	20'-10"	16'-11"
	14"	24'-7"	22'-5"	21'-2"	19'-7"	27'-5"	25'-0"	21'-3"	17'-0"
	16"	27'-2"	24'-9"	22'-7"	18'-0"	30'-2"	24'-6"	20'-4"	16'-3"
	18"	29'-7"	27'-1"	22'-10"	18'-3"	32'-0"	25'-2"	20'-11"	16'-8"
	20"	32'-1"	27'-9"	23'-1"	18'-5"	33'-8"	25'-11"	21'-6"	17'-2"
PWI-50	9 1/2"	17'-10"	16'-3"	15'-5"	14'-5"	19'-10"	18'-1"	17'-1"	15'-11"
	11 7/8"	21'-4"	19'-6"	18'-5"	17'-2"	23'-9"	21'-8"	20'-2"	16'-1"
	14"	24'-4"	22'-2"	21'-0"	19'-7"	27'-1"	24'-3"	20'-2"	16'-1"
	16"	27'-0"	24'-8"	23'-4"	20'-1"	30'-2"	24'-3"	20'-2"	16'-1"
PWI-60	9 1/4"	18'-7"	16'-11"	16'-0"	14'-11"	20'-8"	18'-10"	17'-9"	16'-6"
	9 1/2"	18'-11"	17'-3"	16'-4"	15'-3"	21'-1"	19'-2"	18'-1"	16'-10"
	11 7/8"	22'-7"	20'-8"	19'-6"	18'-2"	25'-2"	22'-11"	21'-8"	18'-5"
	14"	25'-8"	23'-5"	22'-2"	20'-8"	28'-8"	26'-1"	23'-0"	18'-5"
	16"	28'-6"	26'-0"	24'-7"	21'-5"	31'-10"	27'-8"	23'-0"	18'-5"
PWI-70	11 7/8"	23'-4"	21'-3"	20'-1"	18'-8"	26'-0"	23'-8"	22'-3"	19'-5"
	14"	26'-5"	24'-2"	22'-9"	21'-3"	29'-6"	26'-10"	24'-4"	19'-5"
	16"	29'-3"	26'-9"	25'-2"	23'-0"	32'-8"	29'-3"	24'-4"	19'-5"
	18"	32'-0"	29'-3"	27'-7"	23'-0"	35'-9"	29'-3"	24'-4"	19'-5"
	20"	34'-8"	31'-7"	28'-10"	23'-0"	38'-8"	29'-3"	24'-4"	19'-5"
PWI-77 PWI-77w	9 1/2"	19'-8"	17'-11"	16'-11"	15'-10"	21'-11"	20'-0"	18'-10"	17'-7"
	11 7/8"	23'-5"	21'-4"	20'-2"	18'-10"	26'-1"	23'-9"	22'-5"	20'-11"
	14"	26'-7"	24'-3"	22'-11"	21'-4"	29'-8"	27'-0"	25'-6"	21'-4"
	16"	29'-5"	26'-10"	25'-4"	23'-8"	32'-10"	29'-11"	26'-8"	21'-4"
	18"	32'-2"	29'-4"	27'-9"	25'-6"	35'-11"	32'-1"	26'-8"	21'-4"
	20"	34'-10"	31'-10"	30'-0"	25'-6"	38'-11"	32'-1"	26'-8"	21'-4"
	22"	37'-5"	34'-2"	32'-3"	30'-1"	41'-10"	38'-2"	35'-1"	31'-5"
	24"	40'-0"	36'-6"	34'-5"	32'-2"	44'-8"	40'-2"	36'-8"	32'-9"
PWI-90	9 1/2"	22'-2"	20'-2"	19'-0"	17'-8"	24'-8"	22'-5"	21'-1"	19'-8"
	11 7/8"	26'-5"	24'-0"	22'-7"	21'-1"	29'-5"	26'-9"	25'-2"	23'-4"
	14"	29'-11"	27'-3"	25'-8"	23'-11"	33'-4"	30'-4"	28'-6"	26'-6"
	16"	33'-1"	30'-2"	28'-5"	26'-5"	36'-11"	33'-7"	31'-7"	26'-7"
	18"	36'-2"	32'-11"	31'-0"	27'-10"	40'-4"	36'-8"	33'-3"	26'-7"
	20"	39'-2"	35'-8"	33'-7"	27'-10"	43'-8"	39'-9"	33'-3"	26'-7"
	22"	42'-0"	38'-3"	36'-1"	33'-7"	46'-11"	42'-8"	40'-2"	36'-7"
	24"	44'-10"	40'-10"	38'-6"	35'-10"	50'-1"	45'-6"	42'-10"	36'-7"

For **SI:** 1 inch = 25.4 mm.

1. Table values apply to uniformly loaded, residential floor joists.
2. Span is measured from face to face of supports.
3. Deflection is limited to L/240 at total load and L/480 at live load.
4. Table values are based on sheathing that is glued and nailed to the joists (23/32" panels for joists at 24" o.c. and 19/32" panels for joists at 19.2" o.c. and less). Reduce spans by 12" if sheathing is nailed only.
5. Provide at least 1 3/4" of bearing length at end supports and 3 1/2" at intermediate supports. Web stiffeners are not required when joists are used at these spans and spacings, except as might be required by joist hanger manufacturers.
6. Provide lateral restraint at supports (e.g., blocking panels, rim board) and along the compression flange of each joist (e.g. wood structural panel sheathing, gypsum board ceiling, wood structural panel soffit).
7. Use other means to analyze conditions outside the scope of this table (e.g. commercial floors, different bearing conditions, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

TABLE 4—DUCT HOLES[1,2,3,4]

Minimum Distance 'D' From Any Support to the Centerline of the Hole (See Figure 2)

Joist Series	Joist Span	Duct Hole Width				
		8"	10"	12"	14"	16"
PWI-20	8 ft.	3'-10"	3'-11"	3'-11"		
	12 ft.	5'-9"	5'-10"	5'-11"		
	16 ft.	7'-8"	7'-10"	7'-11"		
	20 ft.	9'-7"	9'-9"	9'-11"		
	24 ft	11'-6"	11'-9"	11'-11"		
PWI-30	8 ft.	3'-9"	3'-10"	3'-11"		
	12 ft.	5'-8"	5'-9"	5'-11"		
	16 ft.	7'-7"	7'-8"	7'-10"		
	20 ft.	9'-5"	9'-8"	9'-10"		
	24 ft	11'-4"	11'-7"	11'-10"		
PWI-40/60	8 ft.	3'-6"	3'-7"	3'-9"	3'-10"	3'-11"
	12 ft.	5'-3"	5'-5"	5'-7"	5'-9"	5'-11"
	16 ft.	7'-0"	7'-3"	7'-6"	7'-8"	7'-10"
	20 ft.	8'-10"	9'-1"	9'-4"	9'-7"	9'-10"
	24 ft.	10'-7"	10'-11"	11'-3"	11'-6"	11'-10"
PWI-45	8 ft.	3'-5"	3'-7"	3'-8"	3'-9"	3'-10"
	12 ft.	5'-2"	5'-4"	5'-6"	5'-8"	5'-10"
	16 ft.	6'-11"	7'-2"	7'-5"	7'-7"	7'-9"
	20 ft.	8'-8"	9'-0"	9'-3"	9'-6"	9'-9"
	24 ft.	10'-5"	10'-9"	11'-1"	11'-4"	11'-8"
PWI-47	8 ft.	3'-9"	3'-10"	3'-11"	[6]	
	12 ft.	5'-7"	5'-9"	5'-11"	[6]	
	16 ft.	7'-6"	7'-8"	7'-10"	[6]	
	20 ft.	9'-4"	9'-7"	9'-10"	[6]	
	24 ft.	11'-3"	11'-6"	11'-10"	[6]	
PWI-50	8 ft.	3'-8"	3'-9"	3'-10"	3'-11"	
	12 ft.	5'-6"	5'-7"	5'-9"	5'-11"	
	16 ft.	7'-4"	7'-6"	7'-9"	7'-11"	
	20 ft.	9'-2"	9'-5"	9'-8"	9'-11"	
	24 ft.	11'-0"	11'-3"	11'-7"	11'-11"	
PWI-70	8 ft	3'-7"	3'-8"	3'-9"	3'-10"	[6]
	12 ft.	5'-5"	5'-6"	5'-8"	5'-10"	[6]
	16 ft.	7'-2"	7'-5"	7'-7"	7'-9"	[6]
	20 ft.	9'-0"	9'-3"	9'-6"	9'-9"	[6]
	24 ft.	10'-10"	11'-1"	11'-5"	11'-8"	[6]
PWI-77/77w depth ≤ 20" [5]	8 ft	3'-8"	3'-9"	3'-11"	3'-11"	[6]
	12 ft.	5'-7"	5'-8"	5'-10"	5'-11"	[6]
	16 ft.	7'-5"	7'-7"	7'-10"	7'-11"	[6]
	20 ft.	9'-4"	9'-6"	9'-9"	9'-11"	[6]
	24 ft.	11'-2"	11'-5"	11'-9"	11'-11"	[6]
PWI-90 depth ≤ 20" [5]	8 ft	3'-8"	3'-9"	3'-10"	3'-11"	[6]
	12 ft.	5'-7"	5'-8"	5'-10"	5'-11"	[6]
	16 ft.	7'-5"	7'-7"	7'-9"	7'-11"	[6]
	20 ft.	9'-4"	9'-6"	9'-8"	9'-11"	[6]
	24 ft.	11'-2"	11'-5"	11'-8"	11'-10"	[6]

For **SI:** 1 inch = 25.4 mm.

1. Table values apply to joists sized by means of Table 3.
2. Web holes may be located anywhere between the joist flanges. Leave at least $^1/_8$ inch clearance between the edges of holes and the flanges.
3. Do not cut rectangular holes, or round holes larger than $1^1/_2$ inches in diameter, in cantilevers.
4. The horizontal clearance between the edges of adjacent holes must be at least twice the diameter (or longest side) of the larger hole. Exception: A $1^1/_2$-inch diameter hole may be drilled anywhere in the web. Provide at least 3 inches of horizontal clearance from adjacent holes of any size.
5. For depths ≥ 22", refer to the engineered design recommendations in Section 4.3.
6. Refer to the engineered design recommendations in Section 4.3

TABLE 5—ROUND AND RECTANGULAR HOLES[1 - 4]

Minimum Distance 'D' From Any Support to the Centerline of the Hole (See Figure 2)

Round Hole Diameter			**2"**	**3"**	**4"**	**5"**	**6"**	**6 1/4"**	**8 5/8"**	**10"**	**10 3/4"**	**12"**	**12 3/4"**	**14 3/4"**	**16 3/4"**
Rectangular Hole Side			**1 1/2"**	**2 1/4"**	**3"**	**3 3/4"**	**4 1/2"**	**4 1/2"**	**6 1/4"**	**7 1/2"**	**8"**	**9"**	**9 1/2"**	**11"**	**12 1/2"**
7 7/8" Joist	Span	8 ft.	1'-3"	1'-11"	2'-7"										
		12 ft.	1'-10"	2'-10"	3'-11"										
		16 ft.	2'-5"	3'-10"	5'-3"										
9 1/4" Joist	Span	8 ft.	1'-1"	1'-4"	2'-0"	2'-8"	3'-3"								
		12 ft.	1'-1"	2'-0"	3'-0"	3'-11"	4'-11"								
		16 ft.	1'-5"	2'-8"	4'-0"	5'-3"	6'-7"								
9 1/2" Joist	Span	8 ft.	1'-1"	1'-7"	2'-1"	2'-8"	3'-2"	3'-4"							
		12 ft.	1'-7"	2'-4"	3'-2"	3'-11"	4'-9"	5'-0"							
		16 ft.	2'-1"	3'-2"	4'-3"	5'-3"	6'-4"	6'-8"							
11 7/8" Joist	Span	8 ft.	1'-1"	1'-2"	1'-2"	1'-8"	2'-2"	2'-3"	3'-6"						
		12 ft.	1'-1"	1'-2"	1'-10"	2'-6"	3'-3"	3'-5"	5'-3"						
		16 ft.	1'-1"	1'-5"	2'-5"	3'-4"	4'-4"	4'-7"	7'-0"						
		20 ft.	1'-1"	1'-9"	3'-0"	4'-2"	5'-5"	5'-8"	8'-10"						
14" Joist	Span	8 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-5"	1'-6"	2'-7"	3'-2"	3'-8"				
		12 ft.	1'-1"	1'-2"	1'-2"	1'-5"	2'-1"	2'-3"	3'-10"	4'-10"	5'-5"				
		16 ft.	1'-1"	1'-2"	1'-2"	1'-10"	2'-9"	3'-0"	5'-2"	6'-5"	7'-3"				
		20 ft.	1'-1"	1'-2"	1'-2"	2'-4"	3'-5"	3'-9"	6'-5"	8'-0"	9'-1"				
16" Joist	Span	8 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-10"	2'-5"	2'-9"	3'-4"	3'-9"		
		12 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-8"	3'-7"	4'-1"	5'-0"	5'-7"		
		16 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-4"	1'-6"	3'-7"	4'-9"	5'-5"	6'-7"	7'-5"		
		20 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-8"	1'-11"	4'-6"	6'-0"	6'-10"	8'-3"	9'-4"		
		24 ft.	1'-1"	1'-2"	1'-2"	1'-3"	2'-0"	2'-4"	5'-5"	7'-2"	8'-2"	9'-11"	11'-2"		
18" Joist	Span	8 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	1'-8"	1'-11"	2'-6"	2'-10"	3'-10"	
		12 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-7"	2'-6"	2'-11"	3'-9"	4'-2"	5'-9"	
		16 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-2"	3'-3"	3'-11"	5'-0"	5'-7"	7'-7"	
		20 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-8"	4'-1"	4'-11"	6'-2"	7'-0"	9'-6"	
		24 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	3'-2"	4'-11"	5'-10"	7'-5"	8'-5"	11'-5"	
20" Joist	Span	8 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	1'-5"	1'-5"	1'-9"	2'-0"	2'-10"	3'-11"
		12 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	1'-5"	1'-10"	2'-7"	3'-1"	4'-3"	5'-10"
		16 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	1'-10"	2'-5"	3'-6"	4'-1"	5'-9"	7'-9"
		20 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	2'-3"	3'-1"	4'-4"	5'-1"	7'-2"	9'-9"
		24 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	2'-9"	3'-8"	5'-2"	6'-1"	8'-7"	11'-8"
22" Joist	Span	8 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	1'-8"	1'-10"	2'-3"	2'-5"	3'-0"	3'-6"
		12 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-11"	2'-6"	2'-10"	3'-4"	3'-8"	4'-6"	5'-4"
		16 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-7"	3'-4"	3'-9"	4'-5"	4'-10"	6'-0"	7'-1"
		20 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-5"	1'-7"	3'-2"	4'-2"	4'-8"	5'-7"	6'-1"	7'-6"	8'-10"
		24 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-8"	1'-10"	3'-10"	5'-0"	5'-7"	6'-8"	7'-3"	8'-11"	10'-7"
24" Joist	Span	8 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	1'-5"	1'-6"	1'-10"	2'-0"	2'-7"	3'-1"
		12 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	1'-11"	2'-3"	2'-9"	3'-0"	3'-10"	4'-7"
		16 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-10"	2'-7"	3'-0"	3'-8"	4'-0"	5'-1"	6'-2"
		20 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-3"	3'-2"	3'-8"	4'-6"	5'-0"	6'-4"	7'-8"
		24 ft.	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-9"	3'-10"	4'-5"	5'-5"	6'-0"	7'-8"	9'-3"

For **SI:** 1 inch = 25.4 mm.

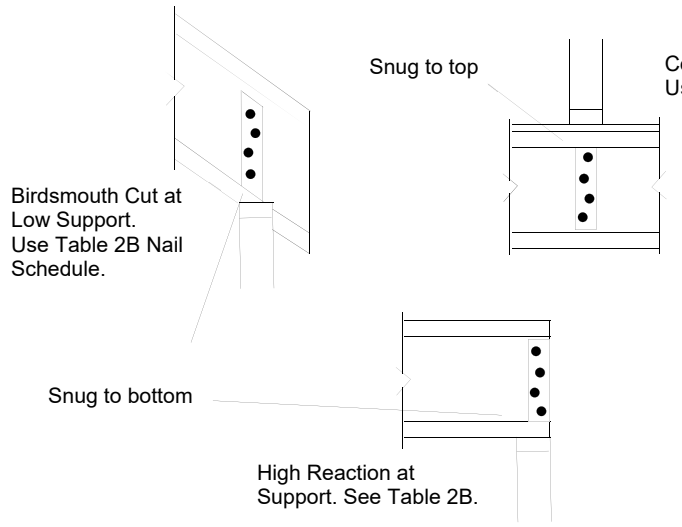
1. Table values apply to joists sized by means of Table 3.
2. Web holes may be located anywhere between the joist flanges. Leave at least 1/8 inch clearance between the edges of holes and the flanges.
3. Do not cut rectangular holes, or round holes larger than 1 1/2 inches in diameter, in cantilevers.
4. The horizontal clearance between the edges of adjacent holes must be at least twice the diameter (or longest side) of the larger hole. Exception: A 1 1/2-inch diameter hole may be drilled anywhere in the web. Provide at least 3 inches of horizontal clearance from adjacent holes of any size.

TABLE 6—ALLOWABLE SHEAR [plf] FOR HORIZONTAL WOOD STRUCTURAL PANEL DIAPHRAGMS FRAMED WITH PWI JOISTS FOR WIND[1] OR SEISMIC LOADING[2,3]

Sheathing Grade	Common Nail Size (dia [in] x length [in])	Minimum Nominal Panel Thickness [in]	Minimum Nominal Width of Nailed Face at Adjoining Panel Edges and Boundaries [in][4, 6]	Blocked Diaphragms		Unblocked Diaphragms	
				Nail Spacing [in] at Diaphragm Boundaries (all cases), at continuous panel edges parallel to load (cases 3&4), and at all panel edges (cases 5&6)		Nails Spaced 6 in. maximum at Diaphragm Boundaries and supported panel edges	
				6	4	Case 1 (No unblocked edges or continuous joints parallel to load)	All Other Configurations (Cases 2, 3, 4, 5 & 6)
				Nail Spacing [in] at Other Panel Edges (cases 1, 2, 3 & 4)			
				6	6		
Structural 1	6d[5] 0.113 x 2	5/16	2	185	250	165	125
			3	210	280	185	140
	8d 0.131 x 2.5	3/8	2	270	360	240	180
			3	300	400	265	200
	10d 0.148 x 3	15/32	2	320	425	285	215
			3	360	480	320	240
Sheathing and Single-Floor	6d[5] 0.113 x 2	5/16	2	170	225	150	110
			3	190	250	170	125
		3/8	2	185	250	165	125
			3	210	280	185	140
	8d 0.131 x 2.5	3/8	2	240	320	215	160
			3	270	360	240	180
		7/16	2	255	340	230	170
			3	285	380	255	190
		15/32	2	270	360	240	180
			3	300	400	265	200
	10d 0.148 x 3	15/32	2	290	385	255	190
			3	325	430	290	215
		19/32	2	320	425	285	215
			3	360	480	320	240

For **SI:** 1 inch = 25.4 mm, 1 lb = 4.448 N.

1. For wind load applications, the values in the table above shall be permitted to be multiplied by 1.4.
2. For shear loads of normal or permanent load duration as defined by the NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.
3. The tabulated allowable shear capacities are for I-joist series with flanges having a specific gravity (G) of 0.50 or higher. For G< 0.50 the allowable shear capacities shall be reduced by multiplying the allowable shear capacities by the Specific Gravity Adjustment Factor = [1-(0.5-G)]. The Specific Gravity Adjustment Factor shall not be greater than 1. See Section 4.4 for flange specific gravity information.
4. The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.
5. 8d common nails minimum are recommended for roofs due to negative pressures of high winds.
6. The tabulated allowable shear values, at a minimum nominal nailed face width of 3 inches, are applicable to PWI-47 I-joists when the diaphragm is constructed with 1.5-inch thick LVL rim board bearing on double 2x6 top wall plates or 2x sill plates, and construction adhesive meeting ASTM D3498 Class $^{1}/_{8}$-inch and Type P/O between the sheathing and I-joist.



Flange Width	Minimum Dimensions		
	Web Stiffeners		Nails
	Thick.	Width	
$1^1/_2$"	$^{15}/_{32}$"	$2^5/_{16}$"	$2^1/_2$" x 0.131"
$1^3/_4$"	$^{19}/_{32}$"	$2^5/_{16}$"	$2^1/_2$" x 0.131"
$2^1/_{16}$"	$^{23}/_{32}$"	$2^5/_{16}$"	$2^1/_2$" x 0.131"
$2^5/_{16}$"	$^{23}/_{32}$"	$2^5/_{16}$"	$2^1/_2$" x 0.131"
$2^1/_2$"	$^{23}/_{32}$"	$2^5/_{16}$"	$2^1/_2$" x 0.131"
$3^1/_2$"	$1^1/_2$"	$3^1/_2$"	$3^1/_4$" x 0.131"
Web stiffener length is approximately $^1/_8$" less than the clear distance between flanges.			

FIGURE 1

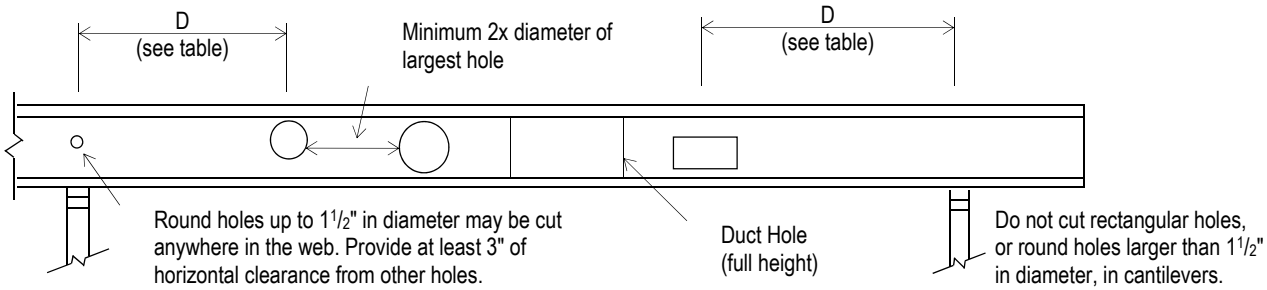


FIGURE 2

ICC-ES Evaluation Report

ESR-1225 LABC and LARC Supplement

Reissued October 2021
Revised April 2022
This report is subject to renewal October 2023.

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 17 33—Wood I-Joists

REPORT HOLDER:

PACIFIC WOODTECH CORPORATION

EVALUATION SUBJECT:

PWI JOISTS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that PWI joists, described in ICC-ES evaluation report ESR-1225, have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2020 *City of Los Angeles Building Code* (LABC)
- 2020 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The PWI joists, described in Sections 2.0 through 7.0 of the evaluation report ESR-1225, comply with the LABC Chapter 23, and the LARC, and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The PWI joists described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report ESR-1225.
- The design, installation, conditions of use and identification are in accordance with the 2018 *International Building Code®* (IBC) provisions noted in the evaluation report ESR-1225.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Flanges must not be subjected to dynamic or static outward forces which may tend to separate the flanges from the web. Bottom flanges must not support load exceeding 250 pounds on each side of flange at 5 feet on center or 100 pounds per linear foot.

This evaluation report supplement expires concurrently with the evaluation report ESR-1225, reissued October 2021 and revised April 2022.